

AMENDMENTS TO THE CLAIMS

Please amend Claims 1 and 14 as follows, without prejudice or disclaimer to continued examination on the merits:

1. (currently amended): A tomosynthesis system for creating a reconstructed image of an object from a plurality of two-dimensional x-ray projection images, the system comprising:

an x-ray detector; and
an x-ray source capable of emitting x-rays directed at the x-ray detector,
wherein the tomosynthesis system utilizes asymmetric image acquisition geometry,
where $\theta_1 \neq \theta_0$, during image acquisition, wherein θ_1 is a sweep angle on one side of a center line of the x-ray detector, and θ_0 is a sweep angle on an opposite side of the center line of the x-ray detector;

wherein the total sweep angle (φ_{asym}) is: $\varphi_{asym} = \theta_1 + \theta_0$; and

wherein φ_{asym} is about 40° to about 60°.

2. (canceled)

3. (canceled)

4. (original): The tomosynthesis system of claim 1, wherein the x-ray detector is positioned at a predetermined position so that images of a region of interest, as acquired during a sweep, are centered on a center of the x-ray detector.

5. (original): The tomosynthesis system of claim 4, wherein the predetermined position comprises at least one of: at a center of a patient's sternum, above the center of the patient's sternum; below the center of the patient's sternum; at a patient's stomach; at one or more of a patient's extremities; and at a patient's limb.

6. (canceled)

7. (original): The tomosynthesis system of claim 1, wherein at least one of the x-ray source and the x-ray detector moves during image acquisition.

8. (original): The tomosynthesis system of claim 7, wherein at least one of the x-ray source and the x-ray detector moves in at least one of the following manners during image acquisition: along a one-dimensional path, along a two-dimensional path, along a three-dimensional path, along an arc, along at least a portion of a circle, along at least a portion of an ellipse, along at least a portion of a hypocycloid, along at least a portion of a line, along at least a portion of a sphere, and along at least a portion of a cone.

9. (original): The tomosynthesis system of claim 1, wherein the x-ray detector remains stationary during image acquisition.

10. (original): The tomosynthesis system of claim 1, wherein the object being imaged moves during image acquisition, while both the x-ray source and the x-ray detector remain stationary during image acquisition.

11. (original): The tomosynthesis system of claim 1, wherein at least one of the x-ray source and the x-ray detector moves in a translational or rotational manner during image acquisition.

12. (original): The tomosynthesis system of claim 1, wherein x-ray scanning occurs in at least one of the following directions: vertically, horizontally, and obliquely.

13. (original): The tomosynthesis system of claim 1, wherein a reconstruction algorithm produces a reconstructed image of the object from the plurality of two-dimensional x-ray projection images.

14. (currently amended): A tomosynthesis method for creating a reconstructed image of an object from a plurality of two-dimensional x-ray projection images, the method comprising:

providing an x-ray detector;
providing an x-ray source capable of emitting x-rays directed at the x-ray detector; and

utilizing asymmetric image acquisition geometry, where $\theta_1 \neq \theta_0$, during image acquisition, wherein θ_1 is a sweep angle on one side of a center line of the x-ray detector, and θ_0 is a sweep angle on an opposite side of the center line of the x-ray detector;

wherein the total sweep angle (φ_{asym}) is: $\varphi_{asym} = \theta_1 + \theta_0$; and

wherein φ_{asym} is about 40° to about 60°.

15. (canceled)

16. (canceled)

17. (original): The tomosynthesis method of claim 14, further comprising:
positioning the x-ray detector at a predetermined position so that images of a region of interest, as acquired during a sweep, are centered on a center of the x-ray detector.

18. (original): The tomosynthesis method of claim 17, wherein the predetermined position comprises at least one of: at a center of a patient's sternum, above the center of the patient's sternum; below the center of the patient's sternum; at a patient's stomach; at one or more of a patient's extremities; and at a patient's limb.

19. (canceled)

20. (original): The tomosynthesis method of claim 14, further comprising:

moving at least one of the x-ray source and the x-ray detector during image acquisition.

21. (original): The tomosynthesis method of claim 20, further comprising:
moving at least one of the x-ray source and the x-ray detector in at least one of the following manners during image acquisition: along a one-dimensional path, along a two-dimensional path, along a three-dimensional path, along an arc, along at least a portion of a circle, along at least a portion of an ellipse, along at least a portion of a hypocycloid, along at least a portion of a line, along at least a portion of a sphere, and along at least a portion of a cone.

22. (original): The tomosynthesis method of claim 14, further comprising:
holding the x-ray detector stationary during image acquisition.
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23. (original): The tomosynthesis method of claim 14, further comprising:
moving the object being imaged during image acquisition, while holding both the x-ray source and the x-ray detector stationary during image acquisition.

24. (original): The tomosynthesis method of claim 14, further comprising:
moving at least one of the x-ray source and the x-ray detector in a translational or rotational manner during image acquisition.

25. (original): The tomosynthesis method of claim 14, wherein x-ray scanning occurs in at least one of the following directions: vertically, horizontally, and obliquely.

26. (original): The tomosynthesis method of claim 14, further comprising:
utilizing a reconstruction algorithm to produce a reconstructed image of the object from the plurality of two-dimensional x-ray projection images.

Please cancel Claims 2, 3, 6, 15, 16, and 19 as indicated above, without prejudice or disclaimer to continued examination on the merits.